

FACT SHEET FOR NPDES PERMIT WA-000223-2
LAFARGE NORTH AMERICA, INC.

TABLE OF CONTENTS

INTRODUCTION	3
BACKGROUND INFORMATION	4
DESCRIPTION OF THE FACILITY	4
History.....	4
Industrial Process	5
PERMIT STATUS.....	9
SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT	9
WASTEWATER CHARACTERIZATION	10
SEPA COMPLIANCE.....	11
PROPOSED PERMIT LIMITATIONS.....	11
DESIGN CRITERIA	11
TECHNOLOGY-BASED EFFLUENT LIMITATIONS	12
SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS	12
Numerical Criteria for the Protection of Aquatic Life.....	12
Numerical Criteria for the Protection of Human Health.....	12
Narrative Criteria	13
Antidegradation.....	13
Critical Conditions	13
Mixing Zones	13
Description of the Receiving Water.....	14
Surface Water Quality Criteria	14
Consideration of Surface Water Quality-Based Limits for Numeric Criteria	14
Whole Effluent Toxicity	16
Human Health	16
Sediment Quality	16
GROUND WATER QUALITY LIMITATIONS.....	17
COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT	
ISSUED 1997.....	17
MONITORING REQUIREMENTS	17
LAB ACCREDITATION	17
OTHER PERMIT CONDITIONS	18
REPORTING AND RECORD KEEPING	18
NONROUTINE AND UNANTICIPATED DISCHARGES	18
SPILL PLAN	18
TREATMENT SYSTEM OPERATING PLAN	18
GENERAL CONDITIONS	18

PERMIT ISSUANCE PROCEDURES	19
PERMIT MODIFICATIONS	19
RECOMMENDATION FOR PERMIT ISSUANCE	19
REFERENCES FOR TEXT AND APPENDICES.....	20
APPENDIX A—PUBLIC INVOLVEMENT INFORMATION.....	21
APPENDIX B—GLOSSARY	22
APPENDIX C—TECHNICAL CALCULATIONS.....	26
APPENDIX D—RESPONSE TO COMMENTS.....	27
APPENDIX E—STORMWATER SCHEMATIC.....	38

INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the state of Washington to administer the NPDES permit program. Chapter 90.48 RCW defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the state include procedures for issuing permits (chapter 173-220 WAC), water quality criteria for surface and ground waters (chapters 173-201A and 200 WAC), and sediment management standards (chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty (30) days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A—Public Involvement of the fact sheet for more detail on the public notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D—Response to Comments.

GENERAL INFORMATION	
Applicant	Lafarge North America, Inc.
Facility Name and Address	Lafarge North America, Inc. 5400 W. Marginal Way SW Seattle, WA 98106
Type of Facility	Cement Manufacturing
SIC Code	3241
Discharge Location	Waterbody Name: Duwamish River Outfall 001 Latitude: 47° 33' 30" N Longitude: 122° 20' 68" W Outfall 004 Latitude: 47° 33' 28" N Longitude: 122° 20' 53" W Outfall 008 Latitude: 47° 33' 13" N Longitude: 122° 20' 45" W

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

The Lafarge North America, Inc., plant, located on West Marginal Way in Seattle (Figure 1), began production in 1967 as Ideal Basic Industries. On March 7, 1990, Ideal Basic Industries Inc., was acquired by Holnam, Inc. An NPDES permit was first issued to the facility in June 1978, for discharge of noncontact cooling water. Stormwater discharge requirements were integrated into the NPDES permit renewal in November 1994. Further upgrades were made following the issuance of the last permit June 16, 1997. A modification was done on October 16, 1998, to reflect a change in name to Lafarge North America, Inc.

The Lafarge North America, Inc., Seattle facility is a single kiln wet process Portland cement manufacturing facility. The basic constituents used in the manufacture of cement are limestone, sand, iron, and clay. As these materials are burned together, they melt and fuse forming cement clinker, which is later ground in a finish mill with the addition of gypsum to make Portland cement. Lafarge's Seattle plant has the capacity to produce 490,000 tons of Portland cement annually.

Raw materials used by Lafarge North America, Inc., include limestone, sand, spent sandblast grit, clay, and gypsum. Lafarge also uses some alternate replacement materials. Petroleum contaminated soils (PCS) act as a partial clay and sand replacement. Other alternate raw materials include mullite (a steel mill by-product), diatomaceous earth, calcium carbonate, aluminum silicate, cement kiln dust, and flyash.

Limestone, clay, and gypsum are unloaded via a waterfront crane located on the plant dock alongside the Duwamish River (Figure 2). All other raw materials are brought in by truck. The clay is deposited into the clay wash pit. All of the other materials are stored in segregated areas between the dock and the kiln, above an underground conveyor system.

The manufacturing process begins with washing and milling clay to achieve a uniform consistency. The other raw materials are selected and conveyed to their respective storage silos. The raw materials, including limestone, clay, sand, and iron, are accurately proportioned as they are fed to the raw mill. The raw mill grinds and blends the raw materials into a chemically uniform slurry. The slurry is then pumped to one of three kiln feed storage tanks where it is continually mixed.

After the slurry has been checked for the proper chemistry, moisture, and fineness, the slurry is carefully metered to the cement kiln. The kiln is 15 feet in diameter and turns 500 feet per hour. The kiln runs 24 hours per day. As the slurry passes through the kiln, the temperature continues to increase until cement clinker balls are formed. The cement clinker is cooled and stored in the clinker storage silos. Maintenance is done on the system during slow production times, usually in the winter months.

Lafarge uses a blend of several types of fuels in the kiln, including a coal/coke blend, used oil, tank bottom oil, fuel oil, and natural gas. Coal is stored in a covered and contained building and sludge is mucked out every 4 to 6 months and slag is put into 50-gallon drums. There is a 140,000-gallon holding tank for waste oils.

Once the clinker is in the clinker silos, it is fed into one of two finish mills. Typically gypsum is added to the ball mill feed belt and is ground concurrently with the clinker, along with a small amount of a grinding aid. Once the cement has been ground, it is pneumatically conveyed to the cement silos where it is stored for shipping via rail, truck, bulk bag, or sack. Lafarge can store approximately 70,000 tons of finished product.

INDUSTRIAL PROCESS

Wastewater System Overview

In 1999, based on an Engineering Report, Lafarge's predecessor built a stormwater collection, storage and recycling system. The system allows the plant to reuse most of the storm water generated onsite and significantly reduces the plants use of fresh water from the city of Seattle. Lafarge has been able to limit the number of discharges to 10 for the last 5 years. The average daily consumption of water is 31,461 ft³ or potentially 314,610 ft³ during a 10-day period. This exceeds the maximum 10-year, 10-day storm event. The following is the calculated 10-year, 10-day storm event water volumes for the respective months: January - 224,894 ft³, February - 187,411 ft³, March - 144,575 ft³.

The average daily water consumption falls 114,119 ft³ short of the 10-year, 24-hour storm event. Storage and procedures to manage the additional rainfall surges are incorporated into this plan. Most of the rainwater is recycled into the cement making process. The stormwater outfalls have weirs installed that allow for ponding of the storm water prior to discharging. A sophisticated programmable logic control system monitors and operates the recycling system with little human intervention.

The main 2003 modifications are as follows:

- Outfalls 005 and 006 were blocked.
- Installed pumping station 001 (north west corner of the plant).
- Installed pumping station 004 (north end of clay soaking pond).
- Installed pumping station 008 (south end of dock).
- Increased the storage capacity of the entire clay soaking pond.
- Installed pumps and piping from the clay pond to the kiln feed and clay tanks.
- Installed a semi-automatic and remote control system.

Operational Procedures

The plant storm water is managed such that the water is consumed in the cement manufacturing process. Stormwater inventory is kept at a minimum at all times to ensure that the maximum storage capacity is available for surges in rainwater supply. The operators schedule the washing of clay and kiln feed production to absorb the rainfall surges and to maximize the available storage capacity. Whenever possible, the annual outage is to be scheduled in the months other than January, which is the month with the highest average rainfall. The stormwater storage capacity has been sized to accommodate the 10-year, 10-day storm event with the kiln in operation for the month of January and all other months with the kiln down for a 10-day outage. In case of most emergency conditions, it is reasonable to assume that the kiln system can be repaired and brought back on line within a 3-day period. At any time of the year, the system has the capacity to store at least 3 days of rain fall with the kiln down. Priority is given to consuming storm water in the cement making process. City water is used only after the storm water inventory is depleted.

Control System

A programmable logic control system controls the start and stop of the pumps, monitor the pump motor status, indicate water levels, valve positions, and provides alarms for all stormwater discharges. The system status and information is continuously available to the control room attendant on duty in the central control room through a computerized human machine interface. A large majority of the time, the system operation is fully automatic. Human intervention is required for water routing changes, discharge sampling, clay wash operation, and maintenance procedures.

Pump Stations

Pump Station 001 Normal Operation: The pump transfers the water collected in basin 001 and the truck wash to the clay pond. The pump starts and stops automatically by a PLC, or manually from a local start/stop station. High level and low level sensors installed in the vault and connected to the PLC start and stop the pump in automatic mode.

An overflow alarm installed at the pump station weir discharge signals to the control room attendant when the pump station overflows. The operator manually inspects the discharge and samples the discharge water for analysis.

Pump Station 004

Normal Operation: These pumps will transfer the water collected in basin 004 to the clay pond. The pumps start and stop automatically by a PLC, or manually from a local start/stop station. High level and low level sensors installed in the vault and connected to the PLC start and stop the pumps in automatic mode.

The two pumps start in stages with the downstream pump starting first and the second starting when the capacity of the first pump is exceeded. An overflow alarm installed at the pump station weir discharge signals to the control room attendant when the pump station overflows. The operator manually inspects the discharge and samples the discharge water for analysis.

Pump Station 008

Normal Operation: These pumps transfer the water collected in basin 008 to the clay pond and/or to the kiln feed or clay tanks. The pumps start and stop automatically by a PLC, or manually from a local start/stop station. High level and low level sensors installed in the vault and connected to the PLC start and stop the pumps in automatic mode. The water routing is determined by the operators and set up according to the current water levels and projected production demands.

An overflow alarm installed at the pump station weir discharge signals to the control room attendant when the pump station overflows. The operator manually inspects the discharge, and samples the discharge water for analysis.

Clay Pond Pump

Normal Operation: This pump transfers the water collected in the clay soaking pit to either of the clay wash mills, the wastewater storage tank, or directly to the kiln feed or clay tanks. The pump starts and stops automatically by a PLC, or manually from a local start/stop station. High level and low level sensors installed in the clay pond side sump and connected to the PLC start and stop the pump in automatic mode. The water routing is determined by the operators according to the current water levels and projected production demands. The valves are set manually to direct the water flow. Water is routed to the wastewater storage tank, if the tank level is low. Otherwise, the pump transfers water to the kiln feed and clay tanks.

Water Storage

Pump Stations and Storm Sewer System

The pump stations and stormwater sewer system is the initial collection and storage for storm water having a combined capacity of 20,757 ft³. After an adequate quantity of water is detected by the electronic level sensors, the pumps automatically transfer the water.

Clay Soaking Pond

The clay soaking pond provides the primary water storage with a storage capacity of 267,700 ft³. The water is consumed in the clay washing process and/or transferred to the wastewater storage tank for consumption as kiln feed. The clay wash operator pulls clay into one of two wash mills with a Sauerman dragline bucket. Water from the pond is added to the wash mills by either the clay pond side sump pump or pulled in with the dragline bucket. The clay is washed to a slip and pumped to the clay tank. The clay slip is fed proportionately to the raw mill in the production of the kiln feed.

Wastewater Storage Tank

The wastewater storage tank has a capacity of 3,318 ft³. This tank is the surge tank for metering a controlled proportion of water to the raw mill during kiln feed preparation. Water from the wastewater storage tank is alternatively transferred to the clay soaking pond. The control system is programmed to first utilize water from the clay pond for supply to the wastewater storage tank. City water is used as makeup for the balance of the kiln feed production requirement. Alternatively water can be supplied from the kiln feed and clay tanks.

Kiln Feed and Clay Tanks

The kiln feed and clay tanks are used as temporary water storage after the clay soaking pond is filled. Each tank has a storage capacity of 78,540 ft³. Water from these tanks is transferred either back to the clay pond or to the wastewater storage tank for consumption in the process. During times of heavy rainfall, at least one of the kiln feed tanks is made available for water storage. The other tanks are available for storage of clay slip and kiln feed. Times of peak rainfall require the plant to operate with a maximum of two kiln feed tanks dedicated to slurry storage. With the kiln in operation, two tanks are required for kiln feed storage and the third is available for water storage. With the kiln down for an extended maintenance outage, two tanks are available for water storage.

Storm Water Outfall Sampling Procedure

The new stormwater management system has three areas of potential discharge. Pump station 001, pump station 004, and pump station 008 are equipped with overflows to bypass during storm events that exceed the 10-year storm event threshold. The plant personnel perform a sampling and testing protocol for the discharges that occur for storm events in excess of the 10 storm event threshold. The samples are to be taken from the discharge end of the pipe whenever practical, or, as an alternative, at the pump station overflow. The discharge end of the pipe will remain the preferred sampling position. There are times when it is unsafe to climb down to the discharge end of the pipe due to inclement weather and/or high tides. Sensors and alarms at each of the three outfalls notify the plant operators when water is discharged. This prompts an inspection and verification of the overflow followed by sampling. Trained operators are equipped with a written procedure filed in the plant operations manual describing the sampling procedure.

Within the first 60 minutes of water discharge, two samples are taken. One for oil and grease analysis and the other for total suspended solids, turbidity, and pH.

Storm water is the only waste water discharged by Lafarge. The noncontact cooling water discharge was terminated in 1996, when the flow-through cooling system was replaced by a glycol-based closed-loop system. The facility uses 80 million gallons of water per year for cement production, 20 million derived from storm water.

The site has been divided into nine stormwater drainage basins: 1, 1A, 4, 4A, 5, 6, 8, 9, and 10 (Figure 2). These basins are defined by pavement slopes and proposed and existing structures or uses which control stormwater runoff movement to the existing collection facilities within each basin. All of the basins except 5, 6, 9, and 10 have a single outfall to the Duwamish River. Basins 1 and 1A discharge to the Duwamish River through Outfall 001 when runoff exceeds the capacity of the currently installed system for recycling (80 gpm). Runoff from Basins 4 and 4A discharges through Outfall 004. Outfall 007 discharges storm water from the Chemithon Plant south of Lafarge's facility. No runoff is generated from Lafarge's Outfall 007. Basin 8 discharges to the Duwamish River when runoff exceeds the capacity of the currently installed system for recycling (400 gpm). Runoff in Basin 9 flows overland off the pavement edge. Runoff from Basin 10 is completely recycled in the cement manufacturing process.

Outfalls 002 and 003 were used for the noncontact cooling water discharge that was terminated; therefore, there is no Basin 2 or Basin 3. Outfalls 005 and 006 were sealed off with concrete plugs in April 1997. The runoff from Basins 5 and 6 that is collected in the east dock trench is now discharged from Outfall 004. The runoff from Basins 5 and 6 that is collected in the west dock trench is now routed to the pump station at Outfall 008 and is recycled into the clay pit.

PERMIT STATUS

The previous permit for this facility was issued on June 16, 1997, and modified on October 21, 1998. The previous permit placed effluent limitations on: total suspended solids, pH, oil and grease, turbidity, copper, lead, and zinc.

An application for permit renewal was submitted to the Department on December 13, 2001, and June 5, 2002, and accepted by the Department on July 8, 2002.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility last received an inspection on September 14, 2005.

Under the previous permit, Lafarge North America, Inc., was authorized to discharge through Outfalls 004 and 008 when the storage capacity of the recycling system was exceeded. Limitations were placed in the permit for Outfall 001 regarding pH, turbidity, total suspended solids, and oil & grease. Although the facility did meet the limitations for 001 in the permit, monitoring for total recoverable metals, including copper, lead and zinc, showed concentrations exceeding water quality standards. Concentrations of copper exceeded standards on December 2, 2002, at 5.4 µg/L versus the standard of 4.8 µg/L and in April of 2003 the concentration reported for copper was 8 µg/L. The values reported for lead were .16 µg/L (within the limits for the standard) and 2 µg/L, versus the limit of 210 µg/L. Zinc reported values were 11 and 19 µg/L, with the standard limited to 90 µg/L.

An inspection on June 27, 2002, noted that most of the storm water is recycled for reuse in the production process. The facility was fairly clean and the stormwater pond looked well maintained. The inspection report notes the review of a letter sent February 1, 2000, by John Drabek (DOE) to Russ Simonson (Lafarge North America, Inc.) clarifying the Surface Water Quality Criteria Washington Administrative Code WAC-173-201A. The letter states, "The

Chapter limits discharges within the range of 6.5 to 8.5 pH and is applicable to the point of discharge from Outfalls 004 and 008. In addition, human-caused variation within this range in the Duwamish River must not be more than 0.5 pH units. The turbidity after thorough mixing cannot exceed 10 NTU over background turbidity when the background turbidity is 50 NTU or less, nor can the discharge have more than a 20 percent increase in turbidity when the background turbidity is more than 50 NTU.” Data received in the Discharged Monitoring Reports from Lafarge demonstrates noncompliance with these standards on several occasions. As recently as January 2005, the pH from Outfall 008 was reported as 9.2, with a TSS value of 530 and increase over turbidity value of 23. Turbidity values reported in November and December 2001 note values of 78 and 77 NTUs for Outfall 004 and in April 2003, a value of 65 NTUs was reported for Outfall 008.

The September 14, 2005, inspection found several concerns related to housekeeping. Seen on the premises were 55-gallon drums, with XD-340-oil, not covered or contained with secondary containment. Exxon petroleum product was located next to a storm drain grate, by an old ball sorter, near stacks, and found to be leaking petroleum. Also, there were small piles of contaminated soil uncovered, with leachate access to storm drains. Catch basins were receiving a lot of solids at the time due to poor housekeeping. A light dusting of fines was noted throughout the site. Track-out was noticed from the coal and petroleum coke products storage area. The petroleum tank is fully sealed (on top as well). Truck washout area has minimal tire wash, and an extended track-out line was observed at the facility gate.

There have been no discharges from Outfall 001 since April of 2003. The reduced capacity of the stormwater pond and the potential for a large slug of material to be transferred to the pond during a rain event is a concern. Most of the storm water from this facility is recycled into the cement manufacturing process. The violations have been related to either the yearly shutdown of the kiln or a large rain event. Monitoring of all outfalls for heavy metals and turbidity will be required in this permit.

WASTEWATER CHARACTERIZATION

As reported in Discharge Monitoring Reports, copper, lead and zinc were characterized over the last ten years and pH, turbidity, and oil & grease were characterized over the last five years. The proposed wastewater discharge is characterized for the following regulated parameters:

Table 1: Wastewater Characterization

Parameter	Concentration
Turbidity	3-60 NTU over background
Oil and Grease	mg/l
Copper T.R.	3 to 400 µg/L
Lead T. R.	2 to 70 µg/L
Zinc T. R.	ND to 490 µg/L
Total Suspended Solids	9 to 530 mg/l
pH	6.8 to 9.2 Standards Units

Heavy metals concentrations may originate from the spent sandblasting grit collected from shipyards. Alkalinity or high pH originates from the lime in concrete. Oil and grease may originate from the petroleum-contaminated soils and turbidity and total suspended solids are related to the fine sediment found throughout the site. Of the heavy metal parameters, the highest concern is copper. Copper can adversely affect salmon by affecting the olfactory (Hansen, 1998)

SEPA COMPLIANCE

This facility is required to comply with all State Environmental Policy Act regulations and guidelines.

PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in an NPDES permit must be either technology- or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the surface water quality standards (chapter 173-201A WAC), ground water standards (chapter 173-200 WAC), sediment quality standards (chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application and from Discharge Monitoring Reports. The effluent constituents were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are taken from Holman Incorporated Cement Manufacturing Plant, Seattle, Washington, October 1996 Engineering Report prepared by Vasey Engineering and are as follows:

The system is designed to contain, store, and recycle the storm water for the entire facility up to the 10-year, 10-day duration storm event with no discharge of storm water to the Duwamish River. This report was approved on September 24, 1997. A compliance schedule has been established in this permit to implement this design.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Chapter 173-201A-160(4)(c) requires any discharger to evaluate the possibility of achieving water quality criteria via non-construction changes (for example, facility operation, pollution prevention). Lafarge North America, Inc., will be required to continue to follow and improve as necessary best management practices (BMPs) and their Stormwater Pollution Prevention Plan.

To minimize oil and grease discharges, the Department has established an oil and grease effluent limitation of 10 mg/L. This level of control was achieved in the last permit cycle. Visible sheen is an indicator of efficiency of best management practices.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established surface water quality standards. The Washington State surface water quality standards (chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the state of Washington's water quality standards for surface waters (chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the water quality standards are used along with chemical and physical data for the waste water and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other diseases and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDegradation

The Washington State's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall be protected. More information on the Washington State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic waterbody uses.

MIXING ZONES

The water quality standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to Duwamish River which is designated as Class B marine receiving water in the vicinity of the outfall. Other nearby point source outfalls include the Duwamish Shipyard, Seattle Iron and Metal, and several boatyard facilities. Significant nearby nonpoint sources of pollutants include municipal stormwater discharges including bridge runoff.

Characteristic uses include the following:

water supply (industrial, agricultural); stock watering; fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; secondary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall meet or exceed the requirements for most uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Copper	4.8 µg/l
Lead	210 µg/l
Zinc	90 µg/l
Temperature	19.0 degrees Celsius maximum or incremental increases above background. When natural conditions exceed 19.0°C, no temperature increases will be allowed which will raise the receiving water temperature by greater than 0.3°C.
pH	7 to 8.5 standard units, with a human-caused variation within the above range of less than 0.5 units.
Turbidity	Less than 10 NTU above background
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

The Duwamish River is included on the 1996 EPA 303(d) list for exceeding dissolved oxygen, pH, and fecal coliform water quality standards. The 303(d) list also reports that sediments exceed the sediment quality standards for heavy metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and sediment bioassay.

Suspended solids, oil and grease, copper, lead, zinc, pH, and turbidity are the primary pollutants of concern in the Lafarge discharge.

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

The *Urban Stormwater BMP Performance Manual*, page 68, recommends turbidity as a surrogate for TSS. The Department concurs. Turbidity sampling and limits will be required.

Turbidity of water is related to the amount of suspended and colloidal matter contained in the water. It reduces the clarity and penetration of light. Turbidity is an indirect measure of total suspended solids. Because turbidity is a known and common pollutant in discharges associated with cement manufacturing, Lafarge is required to monitor for turbidity. The permit requires monitoring for turbidity twice a month for stormwater discharges to surface water. This limit is consistent with the state water quality regulations WAC-173-201A which requires turbidity must not exceed: 10 NTU over background when the background is 50 NTU or less; or a 20 percent increase in turbidity when the background turbidity is more than 50 NTU for Class B marine waters.

pH extremes are toxic to fish. The data demonstrate that within the activities covered under this permit, high pH extremes do occur on occasion. All discharges will require monitoring for pH.

Temperature—To protect aquatic organisms, discharge plume temperatures shall occur below: at all times 33°C, a one-day maximum of 21°C, and a seven-day maximum of 17.5°C, to ensure compliance with WAC 201A.

Toxic Pollutants—Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the water quality standards for surface waters or from having surface water quality-based effluent limits.

The following toxics were determined to be present in the discharge: heavy metals, including copper and zinc. A reasonable potential analysis conducted on these parameters determined that stormwater discharge has a reasonable potential to exceed water quality standards. As this facility recycles most of their storm water and is prohibited from discharging effluent up to the 10-year, 24-hour storm event, the Department of Ecology has required a 95 percent reduction of discharges from Lafarge. Previously, Lafarge discharged twice a year and the current permit authorizes discharges from precipitation events quantified as having a one-in-ten year probability. This permit requires Lafarge to meet or exceed WAC-173-201A water quality standards.

Water quality criteria for metals in chapter 173-201A WAC are based on the dissolved fraction of the metal.

The Permittee may provide data clearly demonstrating the seasonal partitioning of the dissolved metal in the ambient water in relation to an effluent discharge. Metals criteria may be adjusted on a site-specific basis when data is available clearly demonstrating the seasonal partitioning in the ambient water in relation to an effluent discharge.

Metals criteria may also be adjusted using the water effects ratio approach established by USEPA, as generally guided by the procedures in USEPA Water Quality Standards Handbook, December 1983, as supplemented or replaced.

During periods exceeding the design storm, the Permittee is authorized to discharge industrial stormwater at the permitted location subject to complying with the following limitations:

Surface water quality standards (chapter 173-201A WAC) or sediment management standards (chapter 173-204 WAC) of the state of Washington; and 40 CFR 131.

WHOLE EFFLUENT TOXICITY

The water quality standards for surface waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the waste water in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Toxicity caused by unidentified pollutants is not expected in the effluent from this discharge as determined by the screening criteria given in chapter 173-205 WAC. Therefore, no whole effluent toxicity testing is required in this permit. The Department may require effluent toxicity testing in the future if it receives information that toxicity may be present in this effluent.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The Department has determined that the applicant's discharge is unlikely to contain chemicals regulated for human health. The discharge will be reevaluated for impacts to human health at the next permit reissuance.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined that this discharge has the potential to cause a violation of the sediment quality standards because of copper, lead, and zinc. A condition has been placed in the proposed permit which requires the Permittee to demonstrate that either the point of discharge is not an area of deposition or, if the point of discharge is a depositional area, that there is not an accumulation of toxics in the sediments.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated ground water quality standards (chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED 1997

Parameter	Existing Limits	Proposed Final Limits
Total Suspended Sediments	50 mg/L	Not proposed
Turbidity	10 NTU	Compliance with chapter 173-201A WAC
pH	6.0 to 9.0	Compliance with chapter 173-201A WAC
Oil and Grease	10 mg/L	Compliance with chapter 173-201A WAC
Copper	NA	Compliance with chapter 173-201A WAC
Lead	NA	Compliance with chapter 173-201A WAC
Zinc	NA	Compliance with chapter 173-201A WAC

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

LAB ACCREDITATION

With the exception of certain parameters, the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of chapter 173-50 WAC, *Accreditation of Environmental Laboratories*.

OTHER PERMIT CONDITIONS

REPORTING AND RECORD KEEPING

The permit conditions of S3 are based on the authority to specify any appropriate reporting and record keeping requirements to prevent and control waste discharges (WAC 173-220-210).

NONROUTINE AND UNANTICIPATED DISCHARGES

Occasionally, this facility may generate waste water which is not characterized in their permit application because it is not a routine discharge and was not anticipated at the time of application. These typically are waters used to pressure test storage tanks or fire water systems or leaks from drinking water systems. These are typically clean waste waters but may be contaminated with pollutants. The permit contains an authorization for nonroutine and unanticipated discharges. The permit requires a characterization of these waste waters for pollutants and examination of the opportunities for reuse. Depending on the nature and extent of pollutants in this waste water and opportunities for reuse, Ecology may authorize a direct discharge via the process wastewater outfall or through a stormwater outfall for clean water, require the waste water to be placed through the facilities wastewater treatment process or require the water to be reused.

SPILL PLAN

The Department has determined that the Permittee stores a quantity of chemicals that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under Section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080.

The Permittee has developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the Permittee to update this plan and submit it to the Department.

TREATMENT SYSTEM OPERATING PLAN

In accordance with state and federal regulations, the Permittee is required to take all reasonable steps to properly operate and maintain the treatment system (40 CFR 122.41(e)) and WAC 173-220-150 (1)(g). An Operation and Maintenance Manual will be submitted for Ecology approval by December 31, 2006, as required by state regulation for the construction of wastewater treatment facilities (WAC 173-240-150).

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual industrial NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary, to meet water quality standards for surface waters, sediment quality standards, or water quality standards for ground waters, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this proposed permit be issued for five (5) years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

2002. Urban Stormwater BMP Performance Manual

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Hansen, James A. and Rose, James, D. and Jenkins, Robert A., Gerow, Kenneth G. and Bergman, Harold, L.

1999. Chinook Salmon (*Oncorhynchus Tshawytscha*) and Rainbow Trout (*Oncorhynchus Mykiss*) Exposed to Copper: Neurophysiological and Histological Effects on the Olfactory System. Environmental Toxicology and Chemistry. Volume 18:No.9 pp. 1979-1991.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

Washington State Department of Ecology.

Laws and Regulations (<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

APPENDIX A—PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page one of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public Notice of Application (PNOA) was published on September 4, 2001, and September 11, 2001 in the *Seattle Times* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department published a Public Notice of Draft (PNOD) on May 20, 2006, in the *Seattle Times* to inform the public that a draft permit and fact sheet were available for review. Interested persons were invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents were available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments were mailed to:

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 – 160th Avenue SE
Bellevue, WA 98008-5452

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30)-day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, 425-649-7201 or by writing to the address listed above.

This permit and fact sheet were written by Donna Ortiz de Anaya.

APPENDIX B—GLOSSARY

Acute Toxicity—The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART—An acronym for “all known, available and reasonable methods of treatment.”

Ambient Water Quality—The existing environmental condition of the water in a receiving water body.

Ammonia—Ammonia is produced by the breakdown of nitrogenous materials in waste water. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect waste water.

Average Monthly Discharge Limitation—The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)—Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅—Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass—The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine—Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity—The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)—The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling—A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling—A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample—A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction Activity—Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building; construction of residential houses, office buildings, or industrial buildings; and demolition activity.

Continuous Monitoring—Uninterrupted, unless otherwise noted in the permit.

Critical Condition—The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor—A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction, for example, a dilution factor of 10 means the effluent comprises 10 percent by volume and the receiving water 90 percent.

Engineering Report—A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria—Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample—A single sample or measurement taken at a specific time or over a short period of time as is feasible.

Industrial Wastewater—Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility—A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation—The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)—The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility—A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone—An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)—The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

pH—The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)—A calculated value five times the MDL (method detection level).

Responsible Corporate Officer—A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit—A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)—Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

State Waters—Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater—That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility.

Upset—An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit—A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C—TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at <http://www.ecy.wa.gov>.

APPENDIX D—RESPONSE TO COMMENTS

Responsiveness Summary for Fact Sheet for State Waste Discharge Permit No. WA-000223-2 Lafarge North America, Inc.

Comments from Puget Soundkeepers

Comment:

Thank you for the opportunity to comment on the Draft *LaFarge North America NPDES Permit WA-000223-2*.

People For Puget Sound is a nonprofit, citizens' organization whose mission is to protect and restore Puget Sound and the Northwest Straits, including a specific goal to protect and restore the 2,000 miles of Puget Sound shoreline by 2015.

According to the Fact Sheet, LaFarge North America has had many water quality exceedences, especially for metals. The Department of Ecology is the lead agency for Source Control effort related to the Duwamish Superfund Site. Therefore, a more significant effort is needed to better understand the extent of contamination of the river related to this facility. This permit should require a study to determine the amount of contamination that is released to the river annually and to more rigorously reduce the potential for any releases of pollutants. Please note, we are also very concerned about air emissions from this facility related to source control as well.

Thank you for your consideration. If you have any questions, please contact me at (206) 382-7007 or htrim@pugetsound.org.

Sincerely,

Heather Trim
Urban Bays Coordinator

Response:

This permit requires Lafarge to report the quantity of water discharged, through metered flow, and the concentrations of pollutants in the flow. That should cover an understanding of the amount of contamination that is released from this facility annually. The Department is confident that limiting Lafarge's discharges to surface water to the 10-year, 24-hour return interval and additionally imposing approval for discharges between the 10-year, 24-hour up to the 10-year, 10-day will rigorously reduce the potential for releases of pollutants to the Duwamish River. The permit further requires weekly inspections of best management practices and outfall pipes, to ensure that all discharges are known and measured.

Comment:

This letter presents comments to the public comment draft permit and fact sheet for NPDES Permit No. WA-000223-2, submitted on behalf of Lafarge North America, Inc.

1. Special Condition S1.B “Effluent Limitations”

Draft condition S1.B prohibits all industrial stormwater discharges except when precipitation exceeds the design storm (a 10-year, 10-day storm event). Lafarge understands this condition as being intended to ensure that the plant’s stormwater collection and recycling system is operated and maintained to its design capacity. As written, however, the discharge prohibition would have an unintended result, as it would force Lafarge to discharge untreated stormwater when precipitation exceeds the design storm.

The draft condition prohibits all industrial stormwater discharges except when precipitation exceeds the design storm, meaning that Lafarge could not discharge until a storm becomes a 10-year, 10-day event (in which case the collection system will be full). This is problematic because once the collection system is full, the discharge treatment system would be overwhelmed by the quantity of water. In order to most effectively use the filtration and pH system during significant rainfall, Lafarge will have to begin discharging through the treatment system before the collection and recycling system is full. In other words, the only way to manage such a significant volume of water in a manner that minimizes adverse impact to the Duwamish is to begin treating and discharging some of the water, while continuing to pump some to the collection system, before an event is an “official” 10-year, 10-day event and the collection system is full. Prohibiting discharge until an event is officially 10-year, 10-day will overwhelm the treatment system, resulting in untreated discharge.

The most straightforward way to assure that Lafarge is in the best position to avoid discharging untreated stormwater is to revise condition S1.B to revise the condition to require Lafarge to maintain and operate its stormwater collection and recycling system to its design capacity (the 10-year, 10-day precipitation event), without imposing a discharge prohibition. With this approach, Lafarge would be able to anticipate potential 10-year, 10-day events by starting to treat and discharge stormwater before its system is at its full capacity. Ecology would be able to take enforcement action for any discharge resulting from a failure to operate the recycling system at its design capacity. Lafarge requests that Ecology revise the permit to take this approach.

If, however, a prohibition element remains in the permit, the condition should identify the circumstances under which stormwater discharge from a smaller than 10-year, 10-day storm is preferable from a water quality viewpoint. As described above, to be able to use its filtration and pH system to treat discharge during significant rain events (e.g., those approaching the level of a 10-year, 10-day event) without overwhelming the treatment system, the permit must allow Lafarge to anticipate 10-year, 10-day events by managing the collection and treatment systems to discharge treated stormwater before the collection system is full. To achieve this, the exception portion of any prohibition should read:

“... except when precipitation exceeds the design storm or when necessary to preserve recycling system capacity for expected additional rainfall while providing filter and pH system treatment for stormwater discharged.”

An alternative to this approach, if Ecology believes that a prohibition is necessary, would be to require Lafarge to operate and maintain its system to its 10-year, 10-day design capacity, while imposing a discharge prohibition at level, such as a 1-year storm event, that does not require managing recycling system capacity while discharging through the treatment system to handle high stormwater volumes in a manner that maximizes treatment.

Lafarge has made a significant investment to be in a position to avoid discharging impacted stormwater to the Duwamish, building a system that also significantly reduces Lafarge’s use of clean water from the City of Seattle. The permit as written would undermine the potential of Lafarge’s system to minimize adverse impacts to the Duwamish.

Response:

The Department concurs that offering some treatment to the stormwater effluent prior to discharging during large storm events is more protective of water quality. The permit has been modified to include this language:

All discharges below the 10-year, 24-hour design storm are prohibited. For storm events between the 10-year, 24-hour and the 10-year, 10-day design storm, Lafarge is authorized to discharge through outfall 008 following treatment for turbidity and pH. Lafarge shall notify the Department prior to discharge and document storm event information leading to this discharge. Separate notification with the precipitation data shall be submitted to the permit facility manager at Ecology within five (5) days following discharges. Lafarge shall maintain the existing stormwater collection and recycling system to its design storm capacity (the maximum volume of water resulting from the 10-year, 10-day precipitation event).

Comment:

2. Condition S2.B “Additional Monitoring by the Permittee”

This condition refers to “test procedures specified by Condition S3.E of this permit.” But Condition S3.E does not specify any test procedures. Lafarge notes that there is a parallel provision in Condition S3.D. To reduce the potential for confusion, Lafarge asks Ecology to relocate and consolidate the “Additional Monitoring” language from Condition S2.B (which addresses reporting additional monitoring results) into Condition S3.D (because the topic of S3 is reporting), and delete Condition S2.B.

Response:

The Department concurs. Condition S2.B has been deleted as it is already required in Condition S3.D.

Comment:

3. Condition S3.A “Reporting”

The existing permit allows Lafarge to submit DMRs by the 30th day of each month. Ecology has granted 30 days to submit DMRs in other permits as well. For the times that there is a discharge, the labs that analyze discharge samples are not always timely in providing results. Allowing DMRs to be submitted at the end of the month, rather than the middle of the month, ensures that Lafarge will have sufficient time to provide complete and accurate reports. The current requirement could require Lafarge to have to request extensions from Ecology or to submit incomplete reports pending receipt of results. Accordingly, Lafarge requests that the third sentence in condition S3.A say “30th day of month” rather than “15th day of the month.”

Response:

As Lafarge is only authorized to discharge during 10-year events and greater, the Department will allow a 30-day reporting period. The permit has been modified to reflect this change.

Comment:

4. Condition S4.A(1) “Operations and Maintenance Manual”

This condition requires the O&M Manual to include emergency procedures for plant shutdown and cleanup in the event of wastewater system upset or failure. We understand this is a condition that makes sense to apply in most instances. In Lafarge’s case, however, shutting the plant down would be counterproductive to recycling water because the stormwater collection and recycling system relies on the consumption of water by kiln operations to maintain system capacity. Lafarge asks Ecology to delete this condition, or at least to revise it as follows: “.. the O&M Manual shall include: 1. Emergency procedures for plant shutdown and cleanup for times when wastewater system upset or failure requires plant shutdown to minimize untreated stormwater discharges.”

Response:

The Department concurs. The permit has been modified to change the language regarding emergency system failures. Documented emergency procedures shall be in place for times of wastewater system upset or failures.

Comment:

5. Condition S10 “Stormwater Pollution Prevention Plan (SWPPP)”

a. Condition S10.A(5)

Condition S10.A(5) lists eight specific best management practices (BMPs), introduced by the following language: “Best management practices included with the approved engineering report shall be implemented. These include:” This section should be deleted for two reasons. First, the approved Engineering Report for the plant does not identify the listed BMPs as the condition indicates. Second, the section is redundant, as BMPs are addressed in detail in Section S10.B.

The approved Engineering Report (“Engineering Report, NPDES Permit, Holnam Incorporated Cement Manufacturing Plant, Seattle, Washington,” October 1996) evaluates four compliance alternatives, including source controls and stormwater recycling. The discussion on source control discusses the costs associated with vehicle maintenance and catch-basin filter socks among other controls. The report concludes by recommending recycling based on performance and cost effectiveness. As a result, the plant invested significant capital building a stormwater recycling system. Condition S10.A(5) is inconsistent with the spirit and conclusion of the approved Engineering Report because it would require Lafarge to now implement source control measures that were part of a compliance alternative that the report recommended against due to higher costs and lesser overall effectiveness.

If Ecology does not remove Section S10.A(5) in its entirety, it must at least remove the listing in S10.A(5)(a), which requires installation and maintenance of drain filter socks. In addition to being identified in the approved Engineering Report as being especially costly, requiring the use of filter socks is unnecessary. Both the recycling and filter systems are designed to handle solids. Sediment that enters the recycling system is pumped to the holding pond, which must be cleared of sediment periodically under the permit. And for stormwater that must be discharged, the filter treatment system is designed to remove sediment. Because Lafarge has already invested in systems designed to handle sediment in stormwater, there is no demonstrated need or engineering support for adding new costly control requirements in this permit. Finally, attempts to try filter socks in the past have just not worked out – they tend toward high maintenance and frequent clogging.

Response:

The Department has agreed to remove mandatory filter sock placement and maintenance from the permit as the frequency of storm water discharged to surface water is low. However, more stringent language has been added to the requirements in Condition S10.5.B and C, Stormwater Pollution Prevention Plan now require weekly inspections of both the conveyance and sediment control facilities.

Comment:

Comment on the Draft Fact Sheet

1. Page 15, “Toxic Pollutants” Section

The 2nd paragraph of the section on “Toxic Pollutants,” in the last sentence, refers to the facility being required to characterize its waste water during the permit cycle. The draft permit, however, does not require such characterization. Lafarge requests that this sentence be deleted from the Fact Sheet for purposes of consistency.

Response:

The fact sheet has been modified as analysis on earlier recorded data documents that the facility does have a reasonable potential to exceed water quality standards for the parameters of zinc and copper. In compliance with Condition S2, Lafarge will continue to characterize all discharges through monitoring of turbidity, copper, lead, zinc, pH, and oil and grease.

Preston|Gates|Ellis LLP

June 16, 2006

Via fax and U.S. Mail

Ms. Tricia Miller, Permit Coordinator
Department of Ecology Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

Re: Lafarge North America, Inc. NPDES Permit No. WA-000223-2
Comments on Draft Permit and Fact Sheet

Dear Ms. Miller:

This letter presents comments to the public comment draft permit and fact sheet for NPDES Permit No. WA-000223-2, submitted on behalf of Lafarge North America, Inc.

Comments on Draft Permit

1. Special Condition S1.B "Effluent Limitations"

Draft condition S1.B prohibits all industrial stormwater discharges except when precipitation exceeds the design storm (a 10-year, 10-day storm event). Lafarge understands this condition as being intended to ensure that the plant's stormwater collection and recycling system is operated and maintained to its design capacity. As written, however, the discharge prohibition would have an unintended result, as it would force Lafarge to discharge untreated stormwater when precipitation exceeds the design storm.

The draft condition prohibits all industrial stormwater discharges except when precipitation exceeds the design storm, meaning that Lafarge could not discharge until a storm becomes a 10-year, 10-day event (in which case the collection system will be full). This is problematic because once the collection system is full, the discharge treatment system would be overwhelmed by the quantity of water. In order to most effectively use the filtration and pH system during significant rainfall, Lafarge will have to begin discharging through the treatment system before the collection and recycling system is full. In other words, the only way to manage such a significant volume of water in a manner that minimizes adverse impact to the Duwamish is to begin treating and discharging some of the water, while continuing to pump some to the collection system, before an event is an "official" 10-year, 10-day event and the collection system is full. Prohibiting discharge until an event is officially 10-year, 10-day will overwhelm the treatment system, resulting in untreated discharge.

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Ms. Tricia Miller
June 16, 2006
Page 2

The most straightforward way to assure that Lafarge is in the best position to avoid discharging untreated stormwater is to revise condition S1.B to revise the condition to require Lafarge to maintain and operate its stormwater collection and recycling system to its design capacity (the 10-year, 10-day precipitation event), without imposing a discharge prohibition. With this approach, Lafarge would be able to anticipate potential 10-year, 10-day events by starting to treat and discharge stormwater before its system is at its full capacity. Ecology would be able to take enforcement action for any discharge resulting from a failure to operate the recycling system at its design capacity. Lafarge requests that Ecology revise the permit to take this approach.

If, however, a prohibition element remains in the permit, the condition should identify the circumstances under which stormwater discharge from a smaller than 10-year, 10-day storm is preferable from a water quality viewpoint. As described above, to be able to use its filtration and pH system to treat discharge during significant rain events (e.g., those approaching the level of a 10-year, 10-day event) without overwhelming the treatment system, the permit must allow Lafarge to anticipate 10-year, 10-day events by managing the collection and treatment systems to discharge treated stormwater before the collection system is full. To achieve this, the exception portion of any prohibition should read:

“... except when precipitation exceeds the design storm or when necessary to preserve recycling system capacity for expected additional rainfall while providing filter and pH system treatment for stormwater discharged.”

An alternative to this approach, if Ecology believes that a prohibition is necessary, would be to require Lafarge to operate and maintain its system to its 10-year, 10-day design capacity, while imposing a discharge prohibition at level, such as a 1-year storm event, that does not require managing recycling system capacity while discharging through the treatment system to handle high stormwater volumes in a manner that maximizes treatment.

Lafarge has made a significant investment to be in a position to avoid discharging impacted stormwater to the Duwamish, building a system that also significantly reduces Lafarge's use of clean water from the City of Seattle. The permit as written would undermine the potential of Lafarge's system to minimize adverse impacts to the Duwamish.

2. Condition S2.B “Additional Monitoring by the Permittee”

This condition refers to “test procedures specified by Condition S3.E of this permit.” But Condition S3.E does not specify any test procedures. Lafarge notes that there is a parallel provision in Condition S3.D. To reduce the potential for confusion, Lafarge asks Ecology to relocate and consolidate the “Additional Monitoring” language from Condition S2.B (which addresses reporting additional monitoring results) into Condition S3.D (because the topic of S3 is reporting), and delete Condition S2.B.

Ms. Tricia Miller
June 16, 2006
Page 3

3. Condition S3.A "Reporting"

The existing permit allows Lafarge to submit DMRs by the 30th day of each month. Ecology has granted 30 days to submit DMRs in other permits as well. For the times that there is a discharge, the labs that analyze discharge samples are not always timely in providing results. Allowing DMRs to be submitted at the end of the month, rather than the middle of the month, ensures that Lafarge will have sufficient time to provide complete and accurate reports. The current requirement could require Lafarge to have to request extensions from Ecology or to submit incomplete reports pending receipt of results. Accordingly, Lafarge requests that the third sentence in condition S3.A say "30th day of month" rather than "15th day of the month."

4. Condition S4.A(1) "Operations and Maintenance Manual"

This condition requires the O&M Manual to include emergency procedures for plant shutdown and cleanup in the event of wastewater system upset or failure. We understand this is a condition that makes sense to apply in most instances. In Lafarge's case, however, shutting the plant down would be counterproductive to recycling water because the stormwater collection and recycling system relies on the consumption of water by kiln operations to maintain system capacity. Lafarge asks Ecology to delete this condition, or at least to revise it as follows: ".. the O&M Manual shall include: 1. Emergency procedures for plant shutdown and cleanup for times when wastewater system upset or failure requires plant shutdown to minimize untreated stormwater discharges."

5. Condition S10 "Stormwater Pollution Prevention Plan (SWPPP)"

a. Condition S10.A(5)

Condition S10.A(5) lists eight specific best management practices (BMPs), introduced by the following language: "Best management practices included with the approved engineering report shall be implemented. These include:" This section should be deleted for two reasons. First, the approved Engineering Report for the plant does not identify the listed BMPs as the condition indicates. Second, the section is redundant, as BMPs are addressed in detail in Section S10.B.

The approved Engineering Report ("Engineering Report, NPDES Permit, Holnam Incorporated Cement Manufacturing Plant, Seattle, Washington," October 1996) evaluates four compliance alternatives, including source controls and stormwater recycling. The discussion on source control discusses the costs associated with vehicle maintenance and catch-basin filter socks among other controls. The report concludes by recommending recycling based on performance and cost effectiveness. As a result, the plant invested significant capital building a stormwater recycling system. Condition S10.A(5) is inconsistent with the spirit and conclusion of the approved Engineering Report because it would require Lafarge to now implement source

Ms. Tricia Miller
June 16, 2006
Page 4

control measures that were part of a compliance alternative that the report recommended against due to higher costs and lesser overall effectiveness.

If Ecology does not remove Section S10.A(5) in its entirety, it must at least remove the listing in S10.A(5)(a), which requires installation and maintenance of drain filter socks. In addition to being identified in the approved Engineering Report as being especially costly, requiring the use of filter socks is unnecessary. Both the recycling and filter systems are designed to handle solids. Sediment that enters the recycling system is pumped to the holding pond, which must be cleared of sediment periodically under the permit. And for stormwater that must be discharged, the filter treatment system is designed to remove sediment. Because Lafarge has already invested in systems designed to handle sediment in stormwater, there is no demonstrated need or engineering support for adding new costly control requirements in this permit. Finally, attempts to try filter socks in the past have just not worked out – they tend toward high maintenance and frequent clogging.

Comment on Draft Fact Sheet

1. Page 15, "Toxic Pollutants" Section

The 2nd paragraph of the section on "Toxic Pollutants," in the last sentence, refers to the facility being required to characterize its waste water during the permit cycle. The draft permit, however, does not require such characterization. Lafarge requests that this sentence be deleted from the Fact Sheet for purposes of consistency.

We appreciate the opportunity to provide these comments to you. If you have any questions, please call us or Travis Weide, Lafarge's new Environmental Manager.

Sincerely,

PRESTON GATES & ELLIS LLP

By 

Kirk A. Lilley

cc: Tom Crowninshield
Travis Weide
Donna Ortiz de Anaya, Facility Manager



June 19, 2006

Donna Ortiz de Anaya
Department of Ecology
3190 160th Ave
Bellevue, WA 98008-5452
Via email: dort461@ecy.wa.gov

RE: Draft LaFarge North America NPDES Permit WA-000223-2

Dear Ms. Ortiz de Anaya,

Thank you for the opportunity to comment on the Draft *LaFarge North America NPDES Permit WA-000223-2*.

People For Puget Sound is a nonprofit, citizens' organization whose mission is to protect and restore Puget Sound and the Northwest Straits, including a specific goal to protect and restore the 2,000 miles of Puget Sound shoreline by 2015.

According to the Fact Sheet, LaFarge North America has had many water quality exceedences, especially for metals. The Department of Ecology is the lead agency for Source Control effort related to the Duwamish Superfund Site. Therefore, a more significant effort is needed to better understand the extent of contamination of the river related to this facility. This permit should require a study to determine the amount of contamination that is released to the river annually and to more rigorously reduce the potential for any releases of pollutants. Please note, we are also very concerned about air emissions from this facility related to source control as well.

Thank you for your consideration. If you have any questions, please contact me at (206) 382-7007 or htrim@pugetsound.org.

Sincerely,

Heather Trim
Urban Bays Coordinator

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Preston|Gates|Ellis LLP

June 22, 2006

Ms. Donna Ortiz de Anaya, Facility Manager
Department of Ecology Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

Re: Lafarge North America, Inc. NPDES Permit No. WA-000223-2
Supplement to Comments on Draft Permit

Dear Ms. Ortiz:

This letter follows up on our phone conversation yesterday about Lafarge's comments on draft NPDES Permit No. WA-000223-2. In the call you expressed a willingness to consider proposed language for Special Condition S1.B that would address the concerns raised in our comment, while also addressing Ecology's concerns that any allowance for discharge in anything less than the design storm be narrowly drawn.

To that end, we ask Ecology to revise Special Condition S1.B as follows. Replace the 1st and 3rd sentences of the condition (the other sentences, including the authorization to discharge beyond the design storm, would remain unchanged) with the following:

All industrial stormwater discharges to the Duwamish are prohibited except when: 1) precipitation exceeds a 10-year, 24-hour event, and 2) a 10-year, 10-day event is reasonably anticipated and discharge is necessary to effectively manage stormwater to maximize treatment, provided the Permittee provides notice to the Department explaining why a 10-year, 10-day event is reasonably anticipated. Lafarge shall maintain the existing stormwater collection and recycling system to its design storm capacity (the maximum volume of water resulting from the 10-year, 10-day precipitation event).

Thank you for considering this proposal. We appreciate the Department's efforts to accommodate Lafarge's input and comments throughout this process.

Sincerely,

PRESTON GATES & ELLIS LLP

By 

Kirk A. Lilley

cc: Tom Crowninshield
Travis Weide

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APPENDIX E—STORMWATER SCHEMATIC

